NOTES

THE Queen has been pleased to confer the honour of Knighthood upon Dr. C. W. Siemens, F.R.S.

M. WOLF has been nominated Member of the Academy of Sciences by 32 votes against 21 given to M. Bouquet de la Grye. At Monday's meeting M. Jordan pronounced the *éloge* of Prof. Henry Smith, and M. Bertrand gave an explanation on the double prize, to which we referred last week. He stated that the Commission was aware of the existence of the paper of Prof. Henry Smith, and that it was to oblige Prof. Smith to publish his valuable secret that the prize-subject was selected.

UP to the present date, we understand, there have been eceived in answer to the official letter of inquiry to the Members of the British Association, as to whether they intended to go to Montreal or not, replies in the affirmative from 340. Among these are a good many who may be said to be really representative of English science, but as might be expected the younger men are present in a larger proportion than the older.

THE Annual Meeting of the Iron and Steel Institute will take place at the Institution of Civil Engineers, 25, Great George Street, Westminster, on Wednesday, May 9th, and two following days. On Wednesday, May 9, the Bessemer Gold Medals for 1883 will be presented to Mr. George J. Snelus and Mr. Sidney Gilchrist Thomas. During the meeting the following papers will be read :—On the Value of Successive Additions to the Temperature of the Air used in Smelting Iron, by Mr. I. Lowthian Bell, D.L., F.R.S., Middlesborough; Comparison of the Working of a Blast Furnace with Blast varying in Temperature from 990° F. to 1414° F., by Mr. William Hawdon, Middlesborough; on American Anthracite Blast Furnace Practice, by Mr. Thomas Hartman, Philadelphia; on the Northampton Iron Ore District, by Mr. W. H. Butlin, Northampton; on Steel Castings for Marine Purposes, by Mr. William Parker, of Lloyds; on the Separation and Utilisation of Tar, &c., from Gas in Siemens' Gas Producers, by Mr. W. S. Sutherland, Birmingham; on Improvements in Railway and Tramway Plant, by M. Albert Riche, London; on the Estimation of Minute Quantities of Carbon by a New Colour Method, by Mr. J. E. Stead, Middlesborough; on the Tin-plate Manufacture, by Mr. Ernest Trubshaw, Llanelly, South Wales; on the Coal-washing Machinery used at Bochum, in Westphalia, by Mr. Fritz Baare, Bochum.

WE regret to announce that Dr. William Farr, C.B., formerly Superintendent of the Statistical Department of the Registrar-General's Office, died on Saturday night. He was born in 1807, at Kenley, in Shropshire, was educated at Shrewsbury, and afterwards proceeded to the Universities of Paris and London. After discharging the duties of house-surgeon of the Infirmary at Shrewsbury for a short time, he continued the practice and teaching of medicine in London, editing the *Medical Annual* and the *British Annals of Medicine*. In 1838 he was appointed Compiler of Abstracts in the Registrar-General's Office, where he organised the statistical department, of which he was made superintendent. In this capacity he assisted in taking the census in 1851, 1861, and 1871. He was author of a large number of articles, contributions to medical journals and papers relating to statistics of health and kindred subjects. He wrote many official reports on Public Health, on the Cholera Epidemic of 1849, and on the Census; and he constructed the English Life Tables, with values of annuities. Dr. Farr was Corresponding Member of the French Institute. It may be remembered that a few years ago considerable disappointment was felt that, when a vacancy occurred in the office of Registrar-General, Dr. Farr was not appointed to the post, with the work of which he had so long been credited.

MAJOR-GENERAL H. G. D. SCOTT, C.B., F.R.S., late Royal Engineers, died on Monday morning at his residence, Silverdale, Sydenham, aged 61. He was educated at the Royal Military Academy, Woolwich, and entered the Royal Engineers in 1840. He acted as instructor in surveying and practical astronomy at Chatham, and also as examiner of military topography for the Military Education Department at the War Office. He retired from the army in 1871 as major-general, and became Director of Buildings at South Kensington, acting as architect to the Royal Albert Hall and Science Schools. He was secretary to the Royal Commissioners of the 1851 Exhibition. He has just finished superintending the construction of the Great International Fisheries Exhibition.

PROF. FRANCIS MARCET, who died a few days ago in London at an advanced age, though English by birth, was a Swiss by adoption and family connection, and spent the greater part of his long life in Geneva. Marcet's achievements in science were numerous and noteworthy, and procured for him the Fellowship of the Royal Society. Some of his discoveries, especially those concerning the boiling point of water, the determination, by freezing, of the specific heat of solids, and, above all, his observations at Pregny on the increase of temperature of artesian wells, are recognised as important. Several of these observations were made in collaboration with his friend, Auguste de la Rive. In conjunction with De Candolle he made a series of researches in vegetable physiology and the action of poison on plants, and his "Manuel de Physique élémentaire," albeit now out of date, ranked forty years ago as the best scientific textbook of the period.

THE French Government are steadily continuing their excellent work of deep-sea investigation. Their vessel, the *Talisman*, is now being equipped and fitted out with the most improved machinery and apparatus, and will leave on June 15 for Morocco, the Canaries, Cape Verd Islands, Azores, and the Sea of Sargasso. Our last expedition of this kind, in the *Challenger*, although highly successful considering the great extent of area traversed by it, might be considered in one respect tentative, and ought to have led to further results. Our own seas have never been sufficiently investigated, while the Americans, Norwegians, Germans, French, and Italians have, especially of late years, been indefatigable in thoroughly exploring their parts of the North Atlantic and Mediterranean.

FROM Monday's debate it is evident that the new Patent Bill will not satisfy everybody, which was just what might be expected. It is certainly a great improvement on the existing law. The provision with regard to the Patent Museum seems to us a step in the right direction. The Bill provides that the control and management of the existing Patent Museum and its contents shall be transferred to and vested in the Department of Science and Art, subject to such directions as Her Majesty in Council may see fit to give. The Department of Science and Art, moreover, may at any time require a patentee to furnish a a model of his invention for deposit in the Patent Museum on payment to the patentee of the cost of the manufacture of the model. Another commendable provision is that the Comptroller shall cause to be issued periodically an illustrated journal of patented inventions, as well as reports of patent cases decided by courts of law, and any other information that the Comptroller may deem generally useful or important.

THE Birmingham Natural History and Microscopical Society has established a "Sociological Section," for the study of Mr. Herbert Spencer's system of philosophy. The section originated in a wish to unite, for the purpose of mutual help, those who were already students of Mr. Herbert Spencer's system, but were unknown to each other, and to introduce to the synthetic philosophy those already engaged in some special biological study,

but as yet unfamiliar with the principles common to all departments of natural history. Mr. Herbert Spencer, who is already an honorary vice-president of the Society, has been communicated with, and has expressed his cordial approval of the course of work proposed to be done by the section, adding some valuable suggestions. It is intended to go through the whole of his works, discussing special points as they arise, and where practicable giving illustrations. The president of the section (Mr. W. R. Hughes, F.L.S.) will open the first meeting with a brief address.

SEVERAL contributions to the theory of the microphone have lately appeared. Mr. Shelford Bidwell has communicated to the Royal Society a series of determinations of the changes of resistance of a microphonic contact under different pressures; and comes to the conclusion that the mere fact that a current causes delicately adjusted metal contacts to adhere to each other seems sufficient to account for the superior efficiency of carbon. Mr. Bidwell also thinks that the heat generated at the contact by the current plays an important part, for in carbon this reduces the resistance, whilst in metals it increases it. Mr. Bidwell's experiments on metals were, however, confined to the metal bismuth, which, being both the most fusible and the worst conductor, is the very one which ought to have been avoided. No conclusion of any value as to the metals in general can be drawn from experiments on bismuth alone. Mr. Oliver Heaviside has also experimented on the microphone, and finds the apparent resistance of a contact to vary inversely as the square root of the current. Arguing from these observations he concludes that it is no use to arrange a number of microphones either in series or in parallel. This result is, however, contradicted by experience, for a transmitter such as the Hunnings, with many contacts in parallel, is much more powerful than the single-contact Blake transmitter. Moreover the results attained in Paris lately by M. Moser using a "battery" of microphones arranged partly in series, partly in parallel, disposes of this conclusion of Mr. Heaviside's. It may be remarked that the suggestion to use a battery of microphones was made in 1881 by Prof. Silvanus Thompson. Messrs. Munro and Warwick have lately produced some successful telephonic or microphonic transmitters with metal contacts. These experimenters regard the action of the microphone as due to the existence of a silent discharge of electricity through the thin air stratum at the contact. This view is perhaps sustained by a remarkable observation due to Mr. Stroh, that when a current is passed through a carbon microphone of a peculiar type there is a very minute repulsion observable between the two pieces of carbon, the actual movement being through a distance of ·0005 of a millimetre!

Litera scripta manet is a phrase which is literally true of China. It is generally mentioned in popular books on that country that the respect for paper on which any words are written is so great that scavengers are specially employed to collect it in the streets and preserve it. Whatever doubt existed on this score must now be set at rest, for in a recent issue of the *Peking Gazette* we find a memorial to the throne from the Police Censor of the central division of the capital, reporting that there are in that city over eighty establishments for the remanufacture of waste paper. Paper with characters on it, the memorialist complains, used to be mixed up with the waste paper and defiled by being applied to such base uses. The memorialist and his colleagues published proclamations embodying the sacred edict of the great Emperor Kang-hi, that in heaven and earth there is nothing more precious than written characters. Shopkeepers were forbidden to traffic in printed or written paper, and the manufacturers were ordered to pick out all such paper from among the waste paper purchased by them, and send it to the offices, where a certain amount per pound would be paid for it. Two temples were selected where this paper could be properly burned periodically. The police magistrates on inquiry find that now the manufacturers have some idea of the reverence due to written characters; but some permanent means of supporting the expenses of the purchase and sacred process of destruction should be established, as at present the memorialist has to pay them out of his own pocket. He further suggests that the sale of the house and furniture of a certain escaped criminal, though they will not fetch much, will be sufficient, if put out at interest, to meet these expenses; and he further requests that the sale of written paper to manufacturers be forbidden. The Imperial rescript on this memorial has not come to our notice; but in all probability the escaped criminal's house and furniture are now employed in preventing the defilement of the "*fliegende Blätter*" of Peking.

ACCORDING to the *China Mail* telegraphs in China are likely to receive a most important extension in the shape of a line from Canton to Shanghai. Should this line be constructed, the southern port will then be in direct connection with Tientsin. Lead ore, according to the same authority, has been discovered in Kwantung, the province in which Canton is situated; and it is proposed to work mines of this metal. These movements are stated to be purely Chinese, "and as signs of progress they are worthy of the most attentive consideration."

FROM Mr. J. F. Duthie's "Report on the Progress and Condition of the Government Botanical Gardens at Saharunpur and Mussoorie for the Year ending March 31, 1882," we learn that many additions have been made to the Gardens, of interesting and valuable economic plants, among them the *Cassia marilandica*, L., or North American senna plant, the wax palm of the Andes (*Ceroxylon andicola*, Humb.), upon the trunks of which large quantities of wax are formed and is easily removed by scraping, *Ferula tingitana*, L., the ammoniacum plant of Morocco, *Fraxinus ornus*, L., the manna ash of the Mediterranean region, *Guaiacum officinale*, L., the lignum vitæ of commerce, *Quassia amara*, L., one of the bitterwood trees from the West Indies, *Rheum palmatum*, L., var. *tanguticum*, a native of North-West China, one of the species which yields medicinal rhubarb. Besides these, many new fruits, vegetables, and fodder plants have been under cultivation. Mr. Duthie reports a very important item of cultivation, that of drug-yielding plants for the supply of drugs for the use of the medical department. Extract of henbane and extract of taraxacum have both been made, and Mr. Duthie has prepared a list of other drugs which he proposes to cultivate either in the hills or at Saharunpur. Amongst these may be mentioned aconite, aloes, buchu, calumba root, colchicum, digitalis, gentian, jalap, liquorice, scammony, colocynth, and others. It seems that the cost of maintaining the Saharunpur Gardens much exceeds the income derived from them; but being kept up mainly for scientific purposes they are not expected to prove directly remunerative. It further appears that sanction has lately been given to the closing of the Gardens at Mussoorie and Chajri, which it has been found impossible to work successfully. A new Hill Garden, however, is to be opened at a more eligible site.

THE valuable geological and palæontological collections from Spitzbergen made by Dr. A. Nathorst and Baron De Geer last summer will be distributed between the National Museum and the Geological Museum at Stockholm, while the duplicate specimens will be presented to the museums in Upsala, Lund, and Gothenburg.

THE Second Part of vol. i. of Thomson and Tait's "Natural Philosophy," second edition, is announced for immediate publication, edited for the most part by Prof. F. Darwin. The remaining volume, originally planned, will not be published.

PROF. O'REILLY writes from the Royal College of Science for Ireland, Dublin, that there was visible there, on the night of the 16th, between 10 and 11 o'clock p.m., an aurora appearing as a glow, but without any beams when observed. The wind on the 17th was from the south, but the temperature was still relatively low.

THE opening of the proposed International Horticultural Exhibition and Botanical Congress at St. Petersburg has been postponed to May 5, 1884.

THE Council of the Popular Observatory of the Trocadéro has decided to open a series of Sunday lectures, illustrated by experiments, during the whole of the summer season. The Thursday lectures will be devoted to astronomical topics and delivered in the evening, and will be followed by demonstrations on the sky itself, weather permitting.

DR. DOBERCK, whose appointment to Hong Kong we noted last week, has been attached to Markree and not to Dunsink Observatory.

THE additions to the Zoological Society's Gardens during the past week include a Rude Fox (*Canis rudis*) from Demerara, presented by Mr. G. H. Hawtayne, C.M.Z.S.; an Arabian Gazelle (*Gazella arabica* ♀) from Arabia, presented by Mr. J. Sewell; three Weasels (*Mustela vulgaris*), British, presented by Mr. George Lang; a Wood Owl (*Syrnium aluco*), British, presented by Capt. E. Hall; a Lanner Falcon (*Falco lanarius*) from Eastern Europe, presented by Major J. H. Hussey; a Common Raven (*Corvus corax*), British, presented by the Earl of Eldon; five Mississippi Alligators (*Alligator mississippiensis*) from the Mississippi, presented by Mr. Thos. Baring; two Common Snakes (*Tropidonotus natrix*), British, presented by Lord Londesborough, F.Z.S.; two White-fronted Capuchins (*Cebus albifrons* ♂ ♀) from South America, presented by Mr. H. Smith; a Palmated Newt (*Triton palmipes*), British, presented by Mr. J. E. Kelsall; two Amherst's Pheasants (*Thaumalea amherstiæ* ♂ ♀) from Szechuen, China, deposited; three Lions (*Felis leo* ♂ ♀ ♀) from South Africa, two Reeves's Pheasants (*Phasianus reevesi* ♂ ♀) from China, a Great Black Cockatoo (*Microglossa aterrima*) from New Guinea, a White-backed Piping Crow (*Gymnorhina leuconota*) from Australia, a Common Otter (*Lutra vulgaris*), British, purchased.

OUR ASTRONOMICAL COLUMN

D'ARREST'S COMET.—We last week referred to the discovery of D'Arrest's comet at the Observatory of Strasburg on the 3rd inst., upon the strength of a telegram received at Lord Crawford's observatory from Prof. Krueger, to the following effect:—"Dr. Hartwig discovered on April 3·610 G.M.T. D'Arrest's periodical comet in right ascension 13h. 55m. 24s., declination +8° 16′. Daily motion −44s. in R.A., and + 9′ in declination." This telegram was published in the Dun Echt Circular, No. 76, but in No. 77 issued five days later we read, "Prof. Krueger telegraphs that the object observed by Dr. Hartwig was not D'Arrest's comet but a new nebula." The "daily motion" assigned to the object in the first telegram, notwithstanding its precise accordance in amount and direction with that which the comet would have had in that position, was therefore an illusion. The calculated place of the comet for April 3·610 G.M.T. is in R.A. 13h. 55m. 11s., Decl. +8° 23′·6. During the next period of absence of moonlight for which an approximate ephemeris was given in this column last week, the theoretical intensity of light will be nearly one-third greater than on April 3.

THE GREAT COMET OF 1882.—Prof. Riccò sends us the following observation of this comet made with the 10-inch refractor at Palermo:—

	M.T.	App R.A.	App. Decl.
	h. m. s.	h. m. s.	° ′ ″
April 6 at 8	21 29 ...	5 58 5·93 ...	−9 4 49·2

He states that the comet was a very faint nebulosity with an elongated nucleus containing two or more points. At this time the comet was distant from the earth 3·87, and from the sun 3·75.

In *Bulletino della Società di Scienze Naturali di Palermo* for February 8 we find some remarks by Prof. Riccò on the circumstances attending the passage of the comet through perihelion. On studying the appearance of the sun from twelve to fifteen hours afterwards, he found the prominences were by no means unusual either as regards number or dimensions; there were nine with a greater altitude than 30″, and about as many smaller ones; the highest was one of 85″ on the west-north-west limb, opposite to the part of the disk traversed by the comet, in which no prominences were visible. The comparison of observations made before and after perihelion passage, shows that no very sensible effect was produced upon the motion of the comet in its course through the coronal atmosphere, and Prof Riccò concludes, on the other hand, that his own observations, made a few hours subsequently, "possono servire a constatare che reciprocamente la cometa non disturbò per nulla il corso degli ordinari fenomeni dell' attività solare."

THE BINARY STAR p ERIDANI.—In a communication to the Royal Society of New South Wales in June, 1880, Mr. Russell, the director of the Observatory at Sydney, suggested, from the measures made since 1856, including his own up to 1880, that this object might not be a binary star at all, but merely afforded an instance of one star passing before another by reason of its proper motion. This opinion is repeated in the volume of double-star results obtained at Sydney, published last year. "In fact," observes Mr. Russell, "a straight line accords better with all the observations made subsequent to Herschel's than any ellipse, and it would appear that the changes are due simply to proper motion; of this I think there cannot be any doubt. . . ." The question has just been very fully and carefully considered by Mr. Downing, of the Royal Observatory, Greenwich, who arrives at an opposite conclusion to that of Mr. Russell, and considers "there is not sufficient evidence to justify us in asserting that p Eridani is other than a binary star." We entirely agree with Mr. Downing in his opinion. If we only compare the measures made by Jacob in 1845-46, with those of Russell and Tebbutt, 1878-80, we get the following expressions:—

$$d \cdot \sin p = -4''{\cdot}361 - [8{\cdot}3894]\,(t - 1850{\cdot}0)$$
$$d \cdot \cos p = +0''{\cdot}122 - [9{\cdot}1017]\,(t - 1850{\cdot}0)$$

showing differences from Herschel's mean measures, epoch 1834·996, of −5°·1 in position, and + 0″·82 in distance, which are too large to be tolerated.

This star has been occasionally miscalled 6 Eridani, which would imply that it was one of Flamsteed's stars. Flamsteed, it is true, has a star which he calls 6 Eridani, and which is B.A.C. 926; the binary is B.A.C. 521. The letter p was attached to the star by Lacaille in the catalogue at the end of his *Cœlum Australe Stelliferum*. The number 6 is merely borrowed from Bode.

GEOGRAPHICAL NOTES

THE Geographical Society of Lisbon has awarded their gold medal for this year to Mr. Carl Bock, the distinguished eastern traveller, who has also been recently elected Corresponding Member of the Italian Anthropological Society.

THE third German Geographentag was held at Frankfort-on-the-Main on March 29 in the presence of 430 men of science. Prof. Rein (Marburg) delivered the inaugural address, and also opened the geographical exhibition, which comprised 1100 objects of interest. Amongst the most successful addresses we mention the following: Dr. Pechuël Loesche (Leipzig), on the mountain districts of the Congo River, in which he described minutely the mountain chains traversed by the Congo, according to the researches of Oscar Lenz and Güssfeldt. Prof. Ratzel (Munich), on the significance of Polar research with regard to geographical science; he proposed a resolution, "That the Geographentag recognises that the resumption of Polar research by the German Government is equally in the interest of geographical science and of the German nation." This resolution was adopted unanimously. Dr. Finger (Frankfort), on topography as an introduction to geography. Herr Mang (Baden Baden), on the method of the tellurium and lunarium. Dr. Breusing (Bremen), on the means for the determination of the position of localities at the time of great discoveries. Dr.